



SEQUENCE LISTING

<110> INGRAM, LONNIE
ZHOU, SHENGDE

<120> METHODS AND COMPOSITIONS FOR SIMULTANEOUS SACCHARIFICATION AND
FERMENTATION

<130> 49950-59776US

<140> 09/885,297

<141> 2001-06-19

<150> PCT/US01/19690

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<150> 60/214,137

<151> 2000-06-26

<150> 60/219,913

<151> 2000-07-21

<160> 24

<170> PatentIn version 3.2

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
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<223> Description of Artificial Sequence: Synthetic
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 <223> Description of Artificial Sequence: Synthetic primer

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 <223> Description of Artificial Sequence: Synthetic primer

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 <223> Description of Artificial Sequence: Synthetic primer

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 <223> Description of Artificial Sequence: Synthetic primer

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 <223> Description of Artificial Sequence: Synthetic primer

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 <223> Description of Artificial Sequence: Synthetic primer

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agc caa aaa cac gcc cca cgt aaa aaa ctg ttt cta tct tgt gcc tgt 1538
Ser Gln Lys His Ala Pro Arg Lys Lys Leu Phe Leu Ser Cys Ala Cys
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tta gga tta agc ctt gcc tgc ctt tcc agt aat gcc tgg gcg agt gtt 1586
Leu Gly Leu Ser Leu Ala Cys Leu Ser Ser Asn Ala Trp Ala Ser Val
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gag ccg tta tcc gtt agc ggc aat aaa atc tac gca ggt gaa aaa gcc 1634
Glu Pro Leu Ser Val Ser Gly Asn Lys Ile Tyr Ala Gly Glu Lys Ala
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Lys Ser Phe Ala Gly Asn Ser Leu Phe Trp Ser Asn Asn Gly Trp Gly
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Gly Glu Lys Phe Tyr Thr Ala Asp Thr Val Ala Ser Leu Lys Lys Asp
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Trp Lys Ser Ser Ile Val Arg Ala Ala Met Gly Val Gln Glu Ser Gly
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Gly Tyr Leu Gln Asp Pro Ala Gly Asn Lys Ala Lys Val Glu Arg Val
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Val Asp Ala Ala Ile Ala Asn Asp Met Tyr Val Ile Ile Asp Trp His
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Leu Ile Val Thr Ala	Ile Tyr Ala Ala Ser	Ala Ser Thr Trp Asn	
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Gly Leu Ala Trp Ile	Val Gly Ala Ala Leu	Tyr Leu Val Cys Leu	
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 <223> Description of Artificial Sequence: Synthetic primer

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<210> 14
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cgtactatca	acaggttgaa	ctgcggatct	tgcgcccgca	aaaattaaaa	atgaagtttt	10800
gacggtatcg	aacccagag	tcccgtcag	aagaactcgt	caagaaggcg	atagaaggcg	10860
atgcgctgcg	aatcgggagc	ggcgataccg	taaagcacga	ggaagcggtc	agccatttcg	10920
ccgccaagct	cttcagcaat	atcacgggta	gccaacgcta	tgtcctgata	gcggtcgcgc	10980
acacccagcc	ggccacagtc	gatgaatcca	gaaaagcggc	cattttccac	catgatattc	11040
ggcaagcagg	catcgccatg	ggtcacgacg	agatcctcgc	cgtcgggcat	ccgcgccttg	11100
agcctggcga	acagttcggc	tggcgcgagc	ccctgatgct	cttcgtccag	atcatcctga	11160
tcgacaagac	cggcttccat	ccgagtacgt	gctcgctcga	tgcgatgttt	cgcttggtgg	11220
tcgaatgggc	aggtagccgg	atcaagcgta	tgcagccgcc	gcattgcata	agccatgatg	11280
gatactttct	cggcaggagc	aaggtgagat	gacaggagat	cctgccccgg	cacttcgccc	11340
aatagcagcc	agtccttccc	cgcttcagtg	acaacgtcga	gcacagctgc	gcaaggaacg	11400
cccgtcgtgg	ccagccacga	tagccgcgct	gcctcgtctt	ggagttcatt	cagggcaccg	11460
gacaggtcgg	tcttgacaaa	aagaaccggg	cgccctgcg	ctgacagccg	gaacacggcg	11520

gcatcagagc agccgattgt ctgttgtgcc cagtcatagc cgaatagcct ctccacccaa 11580
gcggccggag aacctgcgtg caatccatct tgttcaatca tgcgaaacga tcctcatcct 11640
gtctcttgat ccactagatt attgaagcat ttatcagggt tattgtctca tgagcggata 11700
catatttgaa tgtatttaga aaaataaaca aataggggtt ccgcgcacat ttccccgaaa 11760
agtgccacct gc 11772

<210> 18
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 18
atatttttga tttttcaaga aaagcctgat atcttccaac atctt 45

<210> 19
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 19
gatttgatcc tctagagtca acctgcttgt tactcgtgat cccat 45

<210> 20
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 20
gagtcaacct gcttggttact cgtgatccca ttcacaaggg cgaa 44

<210> 21
<211> 42
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 21

ttactcgtga tccattcac aagggcgaat taattcgccc tt

42

<210> 22

<211> 427

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
amino acid sequence

<400> 22

Met Pro Leu Ser Tyr Ser Asp Asn His Pro Val Ile Asp Ser Gln Lys
1 5 10 15His Ala Pro Arg Lys Lys Leu Phe Leu Ser Cys Ala Cys Leu Gly Leu
20 25 30Ser Leu Ala Cys Leu Ser Ser Asn Ala Trp Ala Ser Val Glu Pro Leu
35 40 45Ser Val Ser Gly Asn Lys Ile Tyr Ala Gly Glu Lys Ala Lys Ser Phe
50 55 60Ala Gly Asn Ser Leu Phe Trp Ser Asn Asn Gly Trp Gly Gly Glu Lys
65 70 75 80Phe Tyr Thr Ala Asp Thr Val Ala Ser Leu Lys Lys Asp Trp Lys Ser
85 90 95Ser Ile Val Arg Ala Ala Met Gly Val Gln Glu Ser Gly Gly Tyr Leu
100 105 110Gln Asp Pro Ala Gly Asn Lys Ala Lys Val Glu Arg Val Val Asp Ala
115 120 125Ala Ile Ala Asn Asp Met Tyr Val Ile Ile Asp Trp His Ser His Ser
130 135 140Ala Glu Asn Asn Arg Ser Glu Ala Ile Arg Phe Phe Gln Glu Met Ala
145 150 155 160

Arg	Lys	Tyr	Gly	Asn	Lys	Pro	Asn	Val	Ile	Tyr	Glu	Ile	Tyr	Asn	Glu
				165					170					175	
Pro	Leu	Gln	Val	Ser	Trp	Ser	Asn	Thr	Ile	Lys	Pro	Tyr	Ala	Glu	Ala
			180					185					190		
Val	Ile	Ser	Ala	Ile	Arg	Ala	Ile	Asp	Pro	Asp	Asn	Leu	Ile	Ile	Val
		195					200					205			
Gly	Thr	Pro	Ser	Trp	Ser	Gln	Asn	Val	Asp	Glu	Ala	Ser	Arg	Asp	Pro
	210					215					220				
Ile	Asn	Ala	Lys	Asn	Ile	Ala	Tyr	Thr	Leu	His	Phe	Tyr	Ala	Gly	Thr
225					230					235					240
His	Gly	Glu	Ser	Leu	Arg	Thr	Lys	Ala	Arg	Gln	Ala	Leu	Asn	Asn	Gly
				245					250					255	
Ile	Ala	Leu	Phe	Val	Thr	Glu	Trp	Gly	Ala	Val	Asn	Ala	Asp	Gly	Asn
			260					265					270		
Gly	Gly	Val	Asn	Gln	Thr	Asp	Thr	Asp	Ala	Trp	Val	Thr	Phe	Met	Arg
		275					280					285			
Asp	Asn	Asn	Ile	Ser	Asn	Ala	Asn	Trp	Ala	Leu	Asn	Asp	Lys	Ser	Glu
	290					295					300				
Gly	Ala	Ser	Thr	Tyr	Tyr	Pro	Asp	Ser	Lys	Asn	Leu	Thr	Glu	Ser	Gly
305					310					315					320
Lys	Ile	Val	Lys	Ser	Ile	Ile	Gln	Ser	Trp	Pro	Tyr	Lys	Ala	Gly	Ser
				325					330					335	
Ala	Ala	Ser	Thr	Thr	Thr	Asp	Gln	Ser	Thr	Asp	Thr	Thr	Met	Ala	Pro
			340					345					350		
Pro	Leu	Thr	Asn	Arg	Pro	Gln	Pro	Thr	His	Arg	Gln	Thr	Ala	Asp	Cys
		355					360					365			
Cys	Asn	Ala	Asn	Val	Tyr	Pro	Asn	Trp	Val	Ser	Lys	Asp	Trp	Ala	Gly
	370					375					380				

Arg Gln Arg Leu Ile Thr Lys Gln Ala Asn Arg Ser Ser Thr Lys Gly
385 390 395 400

Thr Cys Ile Pro Gln Thr Gly Thr Leu His Pro Phe Arg Ala Ala Ile
405 410 415

Pro Pro Gly His Arg Leu Val Ala Val Thr Asn
420 425

<210> 23

<211> 286

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
amino acid sequence

<400> 23

Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
1 5 10 15

Phe Cys Leu Pro Val Phe Ala His Pro Glu Thr Leu Val Lys Val Lys
20 25 30

Asp Ala Glu Asp Gln Leu Gly Ala Arg Val Gly Tyr Ile Glu Leu Asp
35 40 45

Leu Asn Ser Gly Lys Ile Leu Glu Ser Phe Arg Pro Glu Glu Arg Phe
50 55 60

Pro Met Met Ser Thr Phe Lys Val Leu Leu Cys Gly Ala Val Leu Ser
65 70 75 80

Arg Ile Asp Ala Gly Gln Glu Gln Leu Gly Arg Arg Ile His Tyr Ser
85 90 95

Gln Asn Asp Leu Val Glu Tyr Ser Pro Val Thr Glu Lys His Leu Thr
100 105 110

Asp Gly Met Thr Val Arg Glu Leu Cys Ser Ala Ala Ile Thr Met Ser
115 120 125

Asp Asn Thr Ala Ala Asn Leu Leu Leu Thr Thr Ile Gly Gly Pro Lys
130 135 140

Glu Leu Thr Ala Phe Leu His Asn Met Gly Asp His Val Thr Arg Leu
145 150 155 160

Asp Arg Trp Glu Pro Glu Leu Asn Glu Ala Ile Pro Asn Asp Glu Arg
165 170 175

Asp Thr Thr Met Pro Val Ala Met Ala Thr Thr Leu Arg Lys Leu Leu
180 185 190

Thr Gly Glu Leu Leu Thr Leu Ala Ser Arg Gln Gln Leu Ile Asp Trp
195 200 205

Met Glu Ala Asp Lys Val Ala Gly Pro Leu Leu Arg Ser Ala Leu Pro
210 215 220

Ala Gly Trp Phe Ile Ala Asp Lys Ser Gly Ala Gly Glu Arg Gly Ser
225 230 235 240

Arg Gly Ile Ile Ala Ala Leu Gly Pro Asp Gly Lys Pro Ser Arg Ile
245 250 255

Val Val Ile Tyr Thr Thr Gly Ser Gln Ala Thr Met Asp Glu Arg Asn
260 265 270

Arg Gln Ile Ala Glu Ile Gly Ala Ser Leu Ile Lys His Trp
275 280 285

<210> 24

<211> 396

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
amino acid sequence

<400> 24

Met Lys Ser Asn Asn Ala Leu Ile Val Ile Leu Gly Thr Val Thr Leu
1 5 10 15

Asp Ala Val Gly Ile Gly Leu Val Met Pro Val Leu Pro Gly Leu Leu
20 25 30

Arg Asp Ile Val His Ser Asp Ser Ile Ala Ser His Tyr Gly Val Leu
 35 40 45

Leu Ala Leu Tyr Ala Leu Met Gln Phe Leu Cys Ala Pro Val Leu Gly
 50 55 60

Ala Leu Ser Asp Arg Phe Gly Arg Arg Pro Val Leu Leu Ala Ser Leu
 65 70 75 80

Leu Gly Ala Thr Ile Asp Tyr Ala Ile Met Ala Thr Thr Pro Val Leu
 85 90 95

Trp Ile Leu Tyr Ala Gly Arg Ile Val Ala Gly Ile Thr Gly Ala Thr
 100 105 110

Gly Ala Val Ala Gly Ala Tyr Ile Ala Asp Ile Thr Asp Gly Glu Asp
 115 120 125

Arg Ala Arg His Phe Gly Leu Met Ser Ala Cys Phe Gly Val Gly Met
 130 135 140

Val Ala Gly Pro Val Ala Gly Gly Leu Leu Gly Ala Ile Ser Leu His
 145 150 155 160

Ala Pro Phe Leu Ala Ala Ala Val Leu Asn Gly Leu Asn Leu Leu Leu
 165 170 175

Gly Cys Phe Leu Met Gln Glu Ser His Lys Gly Glu Arg Arg Pro Met
 180 185 190

Pro Leu Arg Ala Phe Asn Pro Val Ser Ser Phe Arg Trp Ala Arg Gly
 195 200 205

Met Thr Ile Val Ala Ala Leu Met Thr Val Phe Phe Ile Met Gln Leu
 210 215 220

Val Gly Gln Val Pro Ala Ala Leu Trp Val Ile Phe Gly Glu Asp Arg
 225 230 235 240

Phe Arg Trp Ser Ala Thr Met Ile Gly Leu Ser Leu Ala Val Phe Gly
 245 250 255

Ile Leu His Ala Leu Ala Gln Ala Phe Val Thr Gly Pro Ala Thr Lys
 260 265 270

Arg Phe Gly Glu Lys Gln Ala Ile Ile Ala Gly Met Ala Ala Asp Ala
 275 280 285

Leu Gly Tyr Val Leu Leu Ala Phe Ala Thr Arg Gly Trp Met Ala Phe
 290 295 300

Pro Ile Met Ile Leu Leu Ala Ser Gly Gly Ile Gly Met Pro Ala Leu
 305 310 315 320

Gln Ala Met Leu Ser Arg Gln Val Asp Asp Asp His Gln Gly Gln Leu
 325 330 335

Gln Gly Ser Leu Ala Ala Leu Thr Ser Leu Thr Ser Ile Thr Gly Pro
 340 345 350

Leu Ile Val Thr Ala Ile Tyr Ala Ala Ser Ala Ser Thr Trp Asn Gly
 355 360 365

Leu Ala Trp Ile Val Gly Ala Ala Leu Tyr Leu Val Cys Leu Pro Ala
 370 375 380

Leu Arg Arg Gly Ala Trp Ser Arg Ala Thr Ser Thr
 385 390 395